PATENT SPECIFICATION

337,539

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PROVISIONAL SPECIFICATION.

Improvements in and relating to Filters or Strainers for Petrol or other Liquids.

We, ARTHUR GEORGE FENN, a British Subject, of 71, Bolingbroke Grove, Battersea, London, W. 11, and ANGLO-AMERICAN OIL COMPANY LIMITED, a Company organized under the laws of Great Britain, of 36, Queen Anne's Gate Westminster, London, S.W. 1, do hereby declare the nature of this invention to be as follows:—

This invention relates to filters or strainers for petrol or other liquids and it has for its object to provide a simple and efficient device which may, for example, be inserted in the hose or other pipe through which the liquid is discharged from a petrol pump and which, whilst providing a maximum area of filtering material, shall yet create little or no back pressure in the pump when same is working at normal pumping speeds, so that there is a minimum delay in delivery. A filter, according to the present invention, moreover presents the advantages that the parts are easily accessible for cleaning or replacement, the device as a whole is strongly constructed and the comparatively fragile filtering material, wire gauze, is so supported as to avoid damage thereto. The construction of the device moreover, is such that leakage is prevented. A filter, according to one form of this invention, comprises an outer imperforate cylinder having at each end a cap or closure having a centrally disposed screw-threaded aperture to which are connected the ends of the pipe or hose, carrying the liquid. Preferably, one of the caps just referred to, is capable of ready removal and, replacement for purposes of inspection or removal and replacement of the parts.

Disposed within and concentrically with the outer cylinder are other cylinders of such smaller diameter than the said outer cylinder as to leave a clear annular space between said outer and inner cylinders. The inner cylinders, which form carriers for the filtering material, are perforated and are arranged in axial alignment, the outer ends of said cylinders engaging annular grooves in the inner faces of the aforesaid caps or closures, washers or other devices being provided to prevent leakage at this point. The inner cylinders are of such length that there is a certain space left between their inner ends in each of which is inserted an inwardly dished body having an opening in which is inserted a sheet of fine wire gauze, in the present instance copper gauze of a mesh of 200 per inch. Engaging the imperforate portion of the dished bodies just referred to is a helical spring by which the said cylinders are forced apart and tightly engage the washers at their outer ends, said spring also detachably connecting the two cylinders in a manner such that whilst in effect they constitute a solid body and as such may be readily removed for cleaning or other purposes, they may be readily disconnected one from the other when so desired.

Fitting snugly within the perforated cylinder at the inlet end of the device is a tube formed of wire gauze, such as that previously referred to and fitting snugly upon the outside of the tube at the discharge end of the device is a covering of similar gauze.

In addition to the gauze, there may be provided upon the inside of the perforated cylinder at the admission end of the device, a bag formed of chamois leather conforming in outline approximately to the outline of the cylinder, said bag conveniently held in position by means of a helical spring placed inside it and which forces it against the interior surface of the cylinder. A similar bag may be provided upon the exterior of the cylinder at the outlet side of the device, the bags being designed to supplement the filtering action of the wire gauze.

The action of the device is as follows:— The fluid to be filtered enters at the end of the device at which is situated the filter-carrier having its gauze fitted internally, passes through this gauze into the annular space between the filter carriers and the main cylinder, and thence through the remaining filter carrier which has its gauze fitted on its exterior, through the other end-cap to the delivery pipe.

[*Price* 1/-]

Dated this 27th day of September, 1929.

J. E. EVANS-JACKSON & Co.,
Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in and relating to Filters or Strainers for Petrol or other Liquids.

We, ARTHUR GEORGE FENN, a British Subject, of 71, Bolingbroke Grove, Battersea, London, S.W. 11, and ANGLO-AMERICAN OIL COMPANY LIMITED, a Company organized under the laws of Great Britain of 36, Queen Anne's Gate, Westminster, London, S.W. 1, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to filters or strainers for petrol or other liquids and it has for its object to provide a simple and efficient device, which may, for example, be inserted in the hose or other pipe through which the liquid is discharged from a petrol pump and which, whilst providing a maximum area of filtering material, shall yet create little or no back pressure in the pump when same is working at normal pumping speeds, so that there is a minimum delay in delivery. A filter, according to the present invention, moreover presents the advantages that the parts are easily accessible for cleaning or replacement, the device as a whole is strongly constructed and the comparatively fragile filtering material, wire gauze, is so supported as to avoid damage thereto. The construction of the device moreover, is such that leakage is prevented.

In order that the invention may be the better understood drawings are appended in which:—

Fig. 1 is an elevation of a filter according to this invention.

Fig. 2 is a longitudinal section.

Figure 3 is a transverse section on line A—A Figure 1 looking in the direction of the arrow *x*.

Fig. 4 is a transverse section on line B—B Figure 1 looking in the direction of the arrow *y*.

Fig. 5 is a transverse section on line C—C looking in the direction of the arrow *z*.

and

Figure 6 is an end view of the device as seen from the entrant end.

Referring to the accompanying drawings 1 indicates the outer case of the device comprising an imperforate cylinder having at one end a cap or closure 2 and at the other a closure 3. The closure 2 is recessed at 4 and is provided with an internal screw thread engaging a similar thread formed within a sleeve or collar 5 revoluble upon the outside of the end of the case 1, the end of which is flanged outwardly at 1^a. By rotating the sleeve or collar 5 the closure 2 may be drawn inwards and the flange 1^a clamped tightly between the bottom of the recess 4 and the outer end of collar 5. A washer may be provided to secure a liquid tight joint at this point. The closure 3 is permanently secured to the opposite end of the case 1 in any suitable manner. The closures 2 and 3 are each provided with a centrally disposed aperture indicated respectively by 6 and 7 each of said apertures being screw-threaded for the connection of the pipe or hose carrying the liquid.

Disposed within the case 1 and concentrically with respect thereto are cylinders 8 and 9, of such smaller diameter than the internal diameter of the case 1 as to leave a clear annular space between said outer and inner cylinders. The cylinders 8 and 9, which form the carriers for the filtering material, are perforated, the outer end of the cylinder 8 engaging a recess in the closure 2, a packing ring or washer 10 being provided to secure a tight joint at this point, and the outer end of the cylinder 9 engages a channel 11 upon the closure 3, a packing ring or washer 12 also being provided at this point.

The cylinders 8 and 9 are of such length that there is a space left between their inner ends as clearly shown in figure 2 and inserted in each cylinder at its inner end is an inwardly dished perforated body 11^a and 12^a in which is inserted a sheet of fine wire gauze indicated respectively by 8^a and 9^a, in the present instance the gauze is formed of copper of a mesh of 200 per inch.

Engaging the imperforate portion of the bodies 11^a and 12^a are the ends of a helical spring 13 under the action of which the cylinders 8 and 9 are forced apart and tightly engage the packing at their outer ends. The diameter of said springs or the ends thereof may be such that they

tightly engage the bodies 11^a, 12^a, thereby, connecting the two cylinders in a manner such that whilst they in effect constitute a solid body and as such may be readily removed for cleaning or other purposes, they may be readily disconnected one from the other when so desired.

Fitting snugly within the cylinder 8 is a tube 14 formed of wire gauze such as previously referred to, and fitting snugly upon the outside of cylinder 9 is a similar covering of wire gauze, indicated by 15. In addition to the gauze there may be provided upon the inside of the cylinder 8, a bag like body formed of chamois leather or other suitable material, said bag conveniently being held in position to lie more or less closely in contact with the gauze 14 by means of a helical spring of appropriate diameter. A similar bag may be provided upon the exterior of the cylinder 9, said bags being designed to supplement the filtering action of the wire gauze.

The action of the device is as follows:—

The liquid to be filtered enters the device at the right hand end thereof, the bulk of said liquid passing through the gauze within the cylinder 8 to the space outside the said cylinder from whence it passes through the outer gauze covering and through the perforations of cylinder 9 to the discharge opening in the cap 3. At the same time a certain amount of the liquid will pass through the gauze in the bodies 11^a and 12^a respectively from and to the interiors of the cylinders 8 and 9.

The bodies 11^a and 12^a may if desired be imperforate and no passage of liquid at these points will therefore take place.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A filter or strainer for petrol or other liquids comprising an outer case, a closure at each end of the case, an opening in one closure for the entry of the liquid and an opening in the other closure for its escape, a plurality of perforated cylinders arranged in axial alignment, open at their outer ends and provided respectively with an internal and external covering of filtering or straining material and a spring interposed between the adjacent end of said cylinders whereby their open ends are forced tightly against the ends of the case and they are maintained in position therein.

2. A filter or strainer according to claim 1 in which closures for the inner ends of the cylinders are also perforated and have applied to them filtering or straining material.

3. A filter or strainer according to claim 1 or 2 in which as additional to the filtering or straining material chamois leather or other filtering material is provided.

4. A filter or strainer according to any of the preceding claims in which the spring interposed between the cylinders carrying the filtering or straining medium engages the cylinders or flanged bodies therein in a manner such as to connect the cylinders so that they in effect form one body.

5. A filter or strainer for petrol or other liquid constructed and arranged substantially as described and shown.

Dated this 5th day of June, 1930.
J. E. EVANS-JACKSON & Co.,
Agents for the Applicants.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1930.

[This Drawing is a reproduction of the Original on a reduced scale]

Fig. 1.

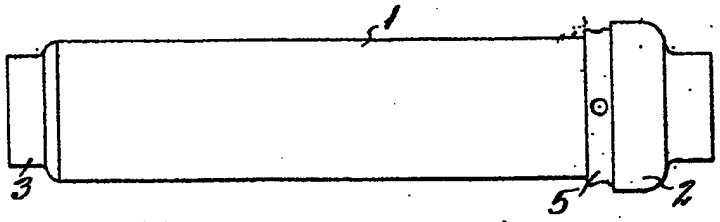


Fig. 2.

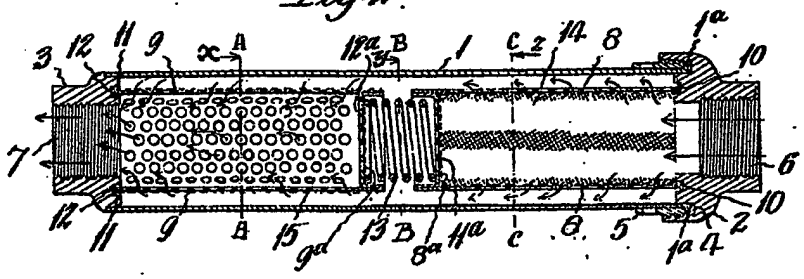


Fig. 3.

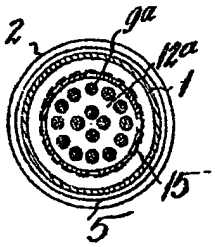


Fig. 4.

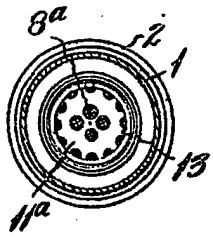


Fig. 5.

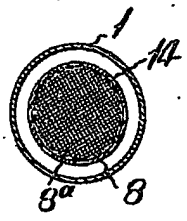
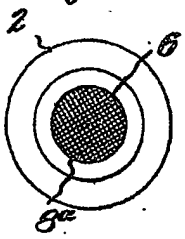


Fig. 6.



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